

## CLAIMS

We Claim:

1. A catalyst composition comprising, in combination, or made from a polymerization catalyst system and at least one gelling agent.
2. The catalyst composition of claim 1 wherein the gelling agent is selected from of the groups consisting of: aluminum ortho-phosphates, diester phosphates, steroid and anthryl derivatives, amino acid-type gelators, organometallic compounds and quaternary ammonium salts.
3. The catalyst composition of claim 1 wherein the gelling agent is selected from the groups consisting of: tetraoctadecyl ammonium bromide, dihexadecylaluminum ortho phosphate, 2,3-bis-n-decyloxy-anthracene, cholesteryl 4-(2-anthryloxy) butanoate and cholesteryl anthraquinone-2-carboxylate.
4. The catalyst composition of claim 1 wherein the gelling agent is selected from the groups consisting of: bicopper tetracarboxylate complex, steroid derivatives, dihydrolanosterol anthryl derivatives and organometallic compounds.
5. The catalyst composition of claim 1 wherein the polymerization catalyst is a supported polymerization catalyst comprising a carrier.
6. A method for making a catalyst composition, the method comprising the steps of:
  - (a) forming a polymerization catalyst; and
  - (b) adding at least one gelling agent.
7. The method of claim 6 wherein the polymerization catalyst comprises a carrier.
8. The method of claim 6 wherein the gelling agent is selected from the groups consisting of: aluminum ortho-phosphates, diester phosphates, steroid and anthryl derivatives, amino acid-type gelators, organometallic compounds and quaternary ammonium salts.
9. A continuous process for polymerizing olefin monomer(s) in a reactor under polymerization conditions, the process comprising the steps of:
  - (a) introducing olefin monomer(s) to the reactor;

- (b) introducing a polymerization catalyst system and at least one gelling agent to the reactor; and
  - (c) withdrawing a polymer product from the reactor.
- 10. The process of claim 9 wherein the process is a slurry process.
- 11. The process of claim 9 wherein the process is a gas phase process.
- 12. The process of claim 9 wherein the gelling agent is contacted with the polymerization catalyst system prior its to introduction into the reactor.
- 13. The process of claim 9 wherein the gelling agent is selected from the groups consisting of: aluminum ortho-phosphates, diester phosphates, steroid and anthryl derivatives, amino acid-type gelators, organometallic compounds and quaternary ammonium salts.
- 14. A continuous gas phase process for polymerizing monomer(s) in a reactor, said process comprising the steps of:
  - (a) introducing a recycle stream into the reactor, the recycle stream comprising one or more monomer(s);
  - (b) introducing a polymerization catalyst system and at least one gelling agent into the reactor;
  - (c) withdrawing the recycle stream from the reactor;
  - (d) cooling the recycle stream;
  - (e) reintroducing the recycle stream into the reactor;
  - (f) introducing into the reactor additional monomer(s) to replace the monomer(s) polymerized; and
  - (g) withdrawing a polymer product from the reactor.
- 15. The process of claim 14 wherein the gelling agent is contacted with the polymerization catalyst prior to its introduction to the reactor.
- 16. The process of claim 14 wherein the polymerization catalyst comprises a carrier.
- 17. The process of 14 wherein the gelling agent is selected from the groups consisting of: aluminum ortho-phosphates, diester phosphates, steroid and anthryl

derivatives, amino acid-type gelators, organometallic compounds and quaternary ammonium salts.

18. A continuous gas phase polymerization process for polymerizing ethylene and one or more alpha-olefins having 4 or more carbon atoms at a pressure in the range of from about 200 psig (1379 kPa) to about 400 psig (2759 kPa), a polymerization temperature in the range of from about 70°C to about 110°C, at a production rate of greater than 10,000 pounds (4540 Kg) of a polymer product per hour, and at a polymerization catalyst productivity of greater than 1500 grams of the polymer product per gram of the polymerization catalyst, the process operating in the presence of at least one gelling agent.

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